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## CETACEANS (WHALES, DOLPHINS AND PORPOISES) RECORDED OFF SRI LANKA, INDIA, FROM THE ARABIAN SEA AND GULF, GULF OF ADEN AND FROM THE RED SEA<sup>1</sup>

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*(With two plates and two text-figures)*

### INTRODUCTION

Cetacea is a highly specialized oceanic group of mammals with several of its species undertaking long migrations, often exceeding thousand miles during a single journey. During these migrations from cold polar and subpolar seas to warmer tropical and subtropical waters and their return to polar seas in summer both individual and mass strandings have very often occurred in many parts of the world, including Sri Lanka, India and the Arabian Gulf.

The Cetacean records dealt with in this paper are of countries which lie at the extreme southern margin of the vast land mass of Asia with no land other than a few islands and vast stretches of the Indian Ocean between

them and the Antarctica. Sri Lanka, in view of her geographic position at the southern extremity of this vast land mass (5° 55' and 9° 51' N latitude and 79° 41' and 81° 54' E longitude) has become a passing point in the movement of oceanic species including the larger whales. It has been suggested by Dera-niyagala (1945, 1960b) that the movement of larger species towards the tropics from the southern temperate zone is partly associated with the periodic influx of Antarctic water toward the tropics. It is however, now fairly established that several larger species such as the Blue whale, the Fin whale and the Hump-back whale show a regular migratory cycle.

The majority of strandings recorded in this paper deal with individual strandings. Nevertheless there have been instances of both mass stranding and of apparent suicidal behaviour.

This paper deals with 30 Cetacean species from the region. Of these records, records from

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Sri Lanka total 23 species, from India 24 species, from Pakistan 17 species, from the Gulf of Oman 10 species, from the Arabian Gulf 9 species, from the Gulf of Aden 6 species and from the Red Sea 7 species.

Reference is also made to a skull of *Delphinus tropicalis* van Bree in the Colombo Museum (Skull No. 15 B) which appears to be its first record from Sri Lanka. Mention is also made of a specimen of *Neophocaena phocaenoides* (G. Cuvier) collected from the Wadge Bank by the Smithsonian Carangid Survey Team in March 1970 and of two incomplete skeletons of *Balaenoptera physalus* (Linné) (probably mother and calf) in the Zoological Museum, King Saud University, Riyadh, Saudi Arabia. All these specimens were identified by me.

It is evident from this study that our present knowledge of the Cetacean fauna of the Indian Ocean is far from complete and that much could be accomplished by scientific institutions in the countries in the region by diligently maintaining proper records of sightings and strandings (with photographs) and by undertaking joint study surveys. It is gratifying to note that Sri Lanka, in recent years has been making much headway in this regard. During the last few years the Tulip Expedition led by Dr. Hal Whitehead has been studying the larger whales, especially the larger whales off the east coast and Dr. Stephen Leatherwood Of Hubbs-Sea World Research Institute (Marine Science), San Diego, California has recently published (1985) a summary of available information on the Cetacea of the Indian Ocean Cetacean Sanctuary on behalf of the National Aquatic Resources Agency for Sri Lanka. It is hoped that the present paper will further stimulate interest among the scientific institutions in the region and help to increase our knowledge of a group of remarkable ani-

mals at least as far as the species which inhabit and visit our seas.

A key to the identification of the species recorded from the region is given in Appendix.

#### CETACEAN SPECIES RECORDED

The Cetacean species recorded from the region are given below:

- I. Suborder ODONTOCETI — Toothed Whales
  - i. Superfamily PLATANISTOIDEA — River Dolphins
    - a. Family PLATANISTIDAE
      1. *Platanista gangetica* (Roxburgh, 1801)
      2. *Platanista minor* Owen, 1853
    - ii. Superfamily PHYSETEROIDEA — Sperm Whales
      - b. Family PHYSETERIDAE
        3. *Physeter macrocephalus* Linnaeus, 1758
        4. *Kogia simus* Owen, 1866
      - iii. Superfamily ZIPHIOIDEA — Beaked Whales
        - c. Family ZIPHIIDAE
          5. *Ziphius cavirostris* G. Cuvier, 1823
          6. *Mesoplodon ginkgodens* Nishiwaki and Kamiya, 1958
        - iv. Superfamily DELPHINOIDEA — Dolphins
          - d. Family STENIDAE
            7. *Steno bredanensis* (Lesson, 1828)
            8. *Sousa chinensis* (Osbeck, 1765)
          - e. Family DELPHINIDAE
            9. *Tursiops truncatus* (Montagu, 1821)
            10. *Delphinus delphis* Linnaeus, 1758
            11. *Delphinus capensis* Gray, 1828
            12. *Delphinus tropicalis* van Bree, 1972
            13. *Stenella attenuata* (Gray, 1846)
            14. *Stenella longirostris* (Gray, 1828)
            15. *Stenella coeruleoalba* (Meyen, 1833)
            16. *Grampus griseus* (G. Cuvier, 1812)
            17. *Peponocephala electra* (Gray, 1846)
            18. *Globicephala macrorhynchus* Gray, 1846
            19. *Feresa attenuata* Gray, 1874
            20. *Pseudorca crassidens* (Owen, 1846)
            21. *Orcinus orca* (Linnaeus, 1758)
            22. *Orcaella brevirostris* (Gray, 1866)
          - f. Family PHOCOENIDAE
            23. *Neophocaena phocaenoides* (G. Cuvier, 1829)

CETACEANS (WHALES, DOLPHINS & PORPOISES) RECORDS

II. Suborder MYSTICETI — Baleen Whales

g. Family BALAENIDAE

24. *Eubalaena australis* Desmoulins, 1822

h. Family BALAENOPTERIDAE

25. *Balaenoptera musculus* (Linnaeus, 1758)

26. *Balaenoptera physalus* (Linnaeus, 1758)

27. *Balaenoptera acutorostrata* Lacépede, 1804

28. *Balaenoptera borealis* Lesson, 1828

29. *Balaenoptera edeni* Anderson, 1878

30. *Megaptera novaeangliae* (Borowski, 1781)

SIGHTINGS, STRANDINGS AND OTHER RECORDS OF THE SPECIES

1. *Platanista gangetica* (Roxburgh, 1801)

GANGES SUSU, GANGES DOLPHIN

Records:

INDIA [Inhabits the Ganges, Brahmaputra and Meghna river systems ranging from the sea to the foot of the mountains. Though common in tidal waters it never enters the sea (Blanford 1891, 591).

2. *Platanista minor* Owen, 1853

INDUS SUSU, INDUS DOLPHIN

Records:

PAKISTAN [Inhabits the Indus river system in silt laden rivers. They do not enter the tidal waters of the Indus].

3. *Physeter macrocephalus* Linnaeus, 1758

SPERM WHALE, CACHALOT

Records:

SRI LANKA [Several sightings in Gulf of Mannar, December 1840's — Wray and Martin, 1980, off Sri Lanka from 13th February to 11th March 1982 and Gulf of Mannar, February

and March 1982—Alling *et al.*, 1982; off north-eastern coast, April 1982 to 16th April 1983 — Leatherwood *et al.*, 1984; off coast of Dondra (S.P.) on 7th May 1985 — Gunaratne and Obeysekera, 1985; strandings from coast of Mannar (N.P.) in September 1889, Bentota (W.P.) in July 1904, Marawila (N.W.P.) on 11th March 1939, Kalpitiya (N.W.P.) in August 1946, Kathaluwa (S.P.) in 1946, Chilaw (N.W.P.) in August 1946, Ambalangoda on 30th August 1960 and Kahawa, Ambalangoda (S.P.) on 11th January 1966. Two specimens caught on 7th September 1982 from Pitipana, Negombo (W.P.) and another in drift net — Joseph *et al.* 1983 and De Bruin, 1972].

INDIA [Sightings — off Nicobar and Andaman Islands, March and April 1920 — Townsend, 1935, Madras in January 1890 observed by Thurston — Blanford, 1891, 571; South of India on 19th April 1983, 3 animals — Leatherwood *et al.*, 1984; strandings — Karwar on 23rd June 1972 — Antony Raja and Vasudev Pai, 1973, Manauli Island, a male in July 1979 — James, 1983; Mahabalipuram, near Madras on 12th April 1980 — James and Manivasagam, 1980; Krusadai Island on 30th April 1980, Pirthentburuth Island near Quilon on 25th November 1980 and Pudupet near Cuddalore on 8th June 1982 — James, 1983 and another from Pudupet, east coast — Kuthalingam *et al.*, 1982].

PAKISTAN [Sind and Baluchistan coasts — Ahmad and Ghalib, 1975].

GULF OF OMAN [Sightings on 16th and 18th January 1982 — Alling, 1982 and Masirah, Oman — Ross, 1981].

4. *Kogia simus* Owen, 1866

DWARF SPERM WHALE, SMALL SPERM WHALE

Records:

SRI LANKA [Sightings — Trincomalee (E.P.) in 1891 — Pearson, 1931; east coast on 11th

and 23rd April 1983 — Alling, 1983; *strandings* — right tympanum and periotic bones of a skull from Trincomalee (E.P.) gifted by Hugh Nevill to the British Museum (Natural History), No. 1891.10.3.1; Moratuwa (W.P.) on 3rd November 1915 — Pearson, 1921; Gunapana (S.P.) on 9th August 1936 and at Wadduwa (S.P.) on 14th August 1960 — Deraniyagala, 1960, 1961; Pitipana, Negombo (W.P.) caught 18th November 1982 — Joseph *et al.* and 18 animals caught off Trincomalee (E.P.) from 9th February 1983 to April 1985 — Prematunga *et al.*, in press and Beruwala (S.P.) — Alling, 1983].

INDIA [Vizagapatam — Blanford, 1891; skull from Madras of a female, No. 1866.2.5.6, on 28th February 1853, gifted by Sir Walter Elliot to the British Museum (Natural History) and described as type of *Physeter (Euphysetes) simus* Owen, 1866; skull gifted by the Superintendent, Trivandrum Museum to the British Museum (Natural History), No. 1952.8.28.2; specimen beached at Trivandrum on December 19th (no year) with a nine inch foetus — Hall and Kelson, 1959].

PAKISTAN [Mekran coast — Ahmad and Ghalib, 1975 and generally common in Pakistan waters — Roberts, 1977; one specimen stranded at Phitti Creek on Sind coast on 17th October 1981 — Mohd. Farooq Ahmad, 1982].

5. *Ziphius cavirostris* G. Cuvier, 1823

CUVIER'S BEAKED WHALE, GOOSE-BEAKED WHALE

Records:

SRI LANKA [*Sightings* — Trincomalee (E.P.) on 15th March 1983 — Alling, 1983 and 3 animals on 16th April 1983 — Leatherwood *et al.*, 1984; *strandings* — Goiyapana (S.P.), 14 feet in length on 20th August 1936; Dodanduwa (S.P.) on 10th January 1939; Colombo Harbour Break-water on 24th June 1939, off Ratmalana (W.P.) taken in a seine net about

200 yards from shore on 30th July 1940 and Telwatta near Hikkaduwa (S.P.) on 1st July 1963 — Deraniyagala, 1945, 1965b; a specimen 18½ feet in length at Madihe, Matara (S.P.) in June 1967].

INDIA [Ellerman and Morrison-Scott, 1966] 1966].

PAKISTAN [Strandings observed on Pakistan coast — Mohd. Farooq Ahmad, 1982].

6. *Mesoplodon ginkgodens* Nishiwaki and Kamiya, 1958

*Mesoplodon hotaula* Deraniyagala, 1963

GINKGO-TOOTHED BEAKED WHALE

Records:

SRI LANKA [*Stranding* — single specimen, female, 14 feet 7 inches at Ratmalana (W.P.) on 26th January 1963 — Deraniyagala, 1963; a specimen caught off Trincomalee (E.P.) suspected to be of this species by Jim Mead — Leatherwood, 1985].

7. *Steno bredanensis* (Lesson, 1828)

*Delphinus rostratus* Desmarest, 1817, 160

*Steno frontatus* Blyth, 1863, 91

*Steno frontatus* Blanford, 1891, 582

ROUGH-TOOTHED DOLPHIN

Records:

INDIA [Nicobar Islands, Bay of Bengal — Blanford, 1891].

PAKISTAN [*Strandings* observed on Pakistan coast — Mohd. Farooq Ahmad, 1982].

GULF OF ADEN [Hershkovitz, 1966, 15].

8. *Sousa chinensis* (Osbeck, 1765)

*Steno plumbeus* Blanford, 1891, 583

*Sotalia fergusoni* Lydekker, 1903, 411

INDO-PACIFIC HUMP-BACKED DOLPHIN

Records:

SRI LANKA [Arippu, Mannar (N.P.) from a

skull gifted by Mr. Holdsworth in the Museum of the Royal College of Surgeons, U.K. — Blanford, 1891; Egodaunya (W.P.), an adult male on 3rd April 1934 taken in a seine net — Deraniyagala, 1945].

INDIA [*Sightings* — Malabar, 1837, van Beneden and Gervais, 1868; off Visakhapatnam, Andhra Pradesh on 18th September 1854-Owen, 1866; Calicut Harbour on 22nd December 1980, 4 animals — Harwood, 1980; north-east of Andaman Island, April 1982 — Leatherwood and Clarke, 1983; *strandings* — skull in the British Museum (Natural History), No. 1866.2.8.2. from Vizagapatam, Madras coast gifted by Sir Walter Elliot; Malabar coast — Blanford — 1891; Waltair, Vizagapatam, Madras (type locality) and Alibág, Bombay — Blanford, 1891; Trivandrum beach and described under *Sotalia fergusonii* — Lydekker, 1903; 2 skulls collected from Malabar coast in 1827 by Dussumier and a mounted specimen in Museum d'Histoire Naturelle, Laboratoire d'Anatomie Comparee, France; 2 skulls, Nos. M5965-6 in the Bombay Natural History Society — Pilleri and Gahr, 1973-74].

PAKISTAN [*Sightings* — observed in Sonmiani as well as near Gwadur — Roberts, 1977; *strandings* — Karachi — Blanford, 1891; 4 strandings in 1981 — at Rehri Creek on 20th March, at Cape Monze on 14th October, at Buleji coast on 15th October and at Korangi Creek on 7th November — Mohd. Farooq Ahmad, 1982].

GULF OF OMAN [*Sightings* — west point and south shore of Hormuz Island on 22nd and 30th January 1973 — 16 animals, 2 animals one mile from Dorgahan on 29th January 1973 — Pilleri and Gahr, 1973].

ARABIAN GULF [Female caught on the coast of Shuaikh Secondary School, Kuwait by fishermen in Spring 1962 and described as *Sotalia fergusonii* and a male in a branch of Khor-Al Zubair, Iraq waters by fishermen on 25th July

1967 — Al-Robbae, 1974; 1 skull, No. MC 47000 in Museum of Comparative Zoology, U.S.A., collected by H. Field on 5th June 1950 from west of Torit, Qatar — Leatherwood, 1985; 4 skulls and mandibles collected by M. D. Gallagher in British Museum (Natural History) — Pilleri and Gahr, 1972; one skull and ramus collected by M. D. Gallagher from Hower Island near Bahrain in January 1973 in the British Museum (Natural History)].

GULF OF ADEN [Skull No. 1962.7.19.1 in British Museum (Natural History) from Kwad, Abyan, west of Aden collected by C. A. Wright and a skull of a female collected by Hinds from Berbera, Somali Republic, No. 1954.9.9.5 — Pilleri and Gahr; Cranial box, No. 1955.2.23.1. from Havta, 210 miles east of Aden — Leatherwood, 1985].

RED SEA [Skull No. 1924.9.11.1, collected by W. A. Macfadyen in the British Museum (Natural History) on the east side of Great Bitter Lake, Suez Canal — Pilleri and Gahr, 1972 and a skull without mandibles, No. 1962.2.19.1. from the Red Sea in the British Museum (Natural History) — Leatherwood, 1985].

## 9. *Tursiops truncatus* (Montagu, 1821)

*Tursiops aduncus* Roberts, 1977, 316

### BOTTLENOSE DOLPHIN

#### *Records:*

SRI LANKA [*Sightings* — Southwest Negombo (W.P.), off Chilaw breakwater, west of Uda-ppuwa, west of Puttalam and south of Talawila (N.W.P.), southwest of Kudremalai Point, off Adam's Bridge (N.P.) — Leatherwood *et al.*, 1984; east coast — Alling *et al.*, 1983; *Collections* — 4 skulls in the British Museum (Natural History), from the Gulf of Mannar (N.P.) gifted by W.W.A. Phillips, from Karativu Island, Portugal Bay (N.W.P.) and from 50 miles north of Colombo and 5 miles from shore gifted by G. C. Beaumont; 4 skulls in

the Colombo Museum; common inshore in Negombo (W.P.) and Trincomalee (E.P.) — Lantz and Gunasekera, 1956; one specimen caught off Negombo — Joseph *et al.*, 1983; Beruwala (S.P.) — Alling and E. R. Tranchell; Trincolee (E.P.) — Alling and Prematunga *et al.*, 1985].

INDIA [*Sightings* — Travancore — Pillay, 1926; *strandings* — Trivandrum in March 1903 listed as *Tursiops catalania* — Leatherwood, 1985; *Collections* — skull from Vizagapatam, Madras, type of *Delphinus godamu* (Owen, 1866) gifted by Sir Walter Elliot; skull No. 1883.11.20.3. from India in the British Museum (Natural History) — Leatherwood, 1985; skeleton from Travancore collected in February 1908, type of *T. dawsoni* in the British Museum (Natural History); skull from Bay of Bengal, type of *D. eurynome* (Gray, 1846), 4 skeletons from Trivandrum, all in the British Museum (Natural History) — Leatherwood and Clarke, 1983; stuffed skin, type of *Delphinus perniger* in Museum of Asiatic Society, Calcutta — Hershkovitz, 1966].

PAKISTAN [Karachi-Blanford, 1891 and Ross, 1977; generally common in Pakistan waters in large herds — Pilleri, 1972 and Roberts, 1977; one specimen stranded at Sandspit on Sind coast on 22nd November 1981 — Mohd. Farooq Ahmad, 1982; 2 skulls, tympanic and periotic from Karachi in the British Museum (Natural History) — Leatherwood, 1985; skeletons from Point Monze and Clifton coast — Pilleri and Gühr, 1973-74].

GULF OF OMAN [Two strandings at Masirah and Ras Al Hadd — Ross, 1981; calvarium and mandible from Sur and calvarium from between Sur and Ras Al Hadd collected in 1977 & 1979 by M. D. Gallagher, 1980 and calvarium from Masirah Island in the British Museum (Natural History) — Leatherwood, 1985].

ARABIAN GULF [*Stranding* — one specimen from Ras Al-Mataf on 15th January 1974 — Al-Robbae, 1974; *Collections* — 2 skeletons from Muscat collected by A.S.G. Jayakar — Blanford, 1888 and 1891; 2 skulls from the Arabian Gulf and a skull and calvarium collected from the Trucial coast near Rasal Khaiman by M. D. Gallagher in the British Museum (Natural History); skeleton from Hormuz in the Pilleri collection — Pilleri and Gühr, 1973-74].

GULF OF ADEN [skeleton of a male from Djibouti collected by J. N. Rose in Museum National d'Histoire Naturelle, Laboratoire d'Anatomie Comparee, Paris — Leatherwood, 1985; Berbera, Somali Republic, 2 skulls gifted by A. Fraser Brunner and 2 skulls collected by V. T. Hinds in the British Museum (Natural History) — Leatherwood, 1985].

RED SEA [Belhoss Islands and type locality of *Delphinus abusalam* Rüppel and *D. hamatus* Weigmann, 1841; Mounted skin with skull inside, Type — *D. abusalam*, collected in 1833 by E. Rüppel and a skull collected in 1842 in Senckenberg Naturmuseum — Leatherwood, 1985].

#### 10. *Delphinus delphis* Linnaeus, 1758

*Delphinus frithii* Blyth, 1859, 492

*Delphinus pomeeagra* Owen, 1866, 23

#### THE COMMON DOLPHIN

##### *Records:*

SRI LANKA [*Sightings* — Kalpitiya (N.W.P.) and Trincomalee (E.P.) — Nevill, 1887; Batticaloa Lagoon (E.P.) — Nevill, 1887; abundant especially around Negombo (W.P.) and Trincomalee (E.P.) during the fishing season — Lantz and Gunasekera, 1956; off Sri Lanka — Alling, 1983; 10 animals on 27th November 1984 off Sri Lanka, Musee Oceanographique — Leatherwood, 1985; 2 skulls in the Colombo Museum].

MALDIVE ISLANDS [Water worn skull without lower jaw on Furadi Island — Deraniyagala, 1956].

INDIA [Madras coast — Blanford, 1891; skull in Calcutta Museum gifted by R.W.G. Frith and described by Blyth under the name of *Delphinus frithii*, skull in the British Museum (Natural History) of a specimen from the Madras coast collected by W. Elliot and described by Owen, 1866 under the name, *Delphinus pomegra*; 6 males and 4 females caught off Calangute, Goa — Thomas, 1983].

### 11. *Delphinus capensis* Gray, 1828

#### CAPE DOLPHIN

##### Records:

PAKISTAN [*Sightings* — off Cape Monze and Karachi — Ahmad and Ghalib, 1975; schools feed inshore — Roberts, 1977 and generally observed in Pakistan coastal waters — Mohd. Farooq Ahmad, 1982; *stranding* — one specimen stranded at Hawk's Bay on Sind coast on 15th October 1981 — Mohd. Farooq Ahmad, 1982].

*Remarks:* The only differences to be observed in Robert's description of *D. capensis*, separating it from *D. delphis* recorded from the Madras coast and from Sri Lanka are the presence of 54 to 58 teeth in each tooth row and longitudinal grey and yellow bands on the flanks in *D. capensis*. *D. delphis* is described to possess 40 to 55 teeth in each tooth row and without the bands on the flanks. However, Burton (1976) and Martin (1977) have described *D. delphis* as having grey and yellow and white undulating stripes on the flanks. Roberts (1977) also states that the Karachi specimens have been assigned by Pilleri to the species *tropicalis* van Bree. This puzzle can only be resolved by a study of living *tropicalis*.

### 12. *Delphinus tropicalis* van Bree, 1972

*Delphinus longirostris* Cuvier, 1829  
*Delphinus dussimieri* Blanford, 1891

#### DUSSUMIER'S DOLPHIN, LONG-NOSED DOLPHIN Records:

SRI LANKA [Skull, No. 15 B in the Colombo Museum, exact locality unknown].

INDIA [Malabar coast — G. Cuvier, 1829, skull in the Museum National d'Histoire Naturelle, Laboratoire d'Anatomie Comparee, Paris; 2 skeletons in the Bombay Natural History Society from Malabar coast — Pilleri and Gihir, 1973-74].

PAKISTAN [*Stranding* — one stranding at Buleji on Sind coast on 15 October 1981 — Mohd. Farooq Ahmad, 1982].

GULF OF OMAN [Skull from Ras Al Hadd in Zoological Museum, Amsterdam-Ross, 1981].

ARABIAN GULF [Skull from Muscat collected by Petty Officer Wright, skull from Arabian Gulf and another skull from Umm Al Quawain lagoon and skull from Ajman Creek near Sharjan, collected by M. D. Gallagher and a skull from Ras Al Khaimah, United Arab Emirates and all in the British Museum (Natural History)].

GULF OF ADEN [Skull of a specimen caught off Berbera, Somali Republic on 16th February 1953 and a skull and postcranial skeleton of a specimen caught on 18th February 1953 from the same locality in the British Museum — van Bree, 1972; skull collected from Djibouti by J. N. Ross in Museum National d'Histoire Naturelle, Laboratoire d'Anatomie Comparee, Paris — Leatherwood, 1985].

### 13. *Stenella attenuata* (Gray, 1846)

#### SPOTTED DOLPHIN

##### Records:

SRI LANKA [A specimen harpooned at sea between Ceylon and the equator described

under *Delphinus velox* by Cuvier, 1829 and Blanford, 1891; mounted specimen collected by Dussumier in Museum National d'Histoire Naturelle, Laboratoire d'Zoologie, France, type of *Delphinus velox*; sightings — Koddiyar Bay, Trincomalee (E.P.) on 28th February 1983; south end of Puttalam lagoon (N.W.P.) on 4th March 1983, 275 and 100 animals respectively; off northern coast 250 to 350 animals on 16th April 1983 — Leatherwood *et al.*, 1984; east coast, 3 herds — Alling *et al.*, 1983 and caught between 9th February 1983 and April 1985; 43 males and 39 females from off Beruwala (S.P.) and Trincomalee (E.P.) — Alling and Prematunga *et al.*, 1985; skull in Colombo Museum and two skulls in NARA Museum, Colombo].

INDIA [Bay of Bengal — Gray, 1846 as *Steno attenuatus* and by Beddard in 1900 as *Prodelphinus attenuatus*; Sundarban Islands, Bay of Bengal as *Delphinus malayanus* — Blanford, 1891; sighting — on 13th April 1983 in northern Bay of Bengal — Leatherwood *et al.*, 1984; skull collected by Mrs. Ince in British Museum (Natural History)].

MALDIVE ISLANDS [Sightings — 75 to 80 animals from 19th to 21st April 1983 — Leatherwood, 1984].

GULF OF OMAN [Calvarium and rostrum collected by M. D. Gallagher from near Siham, Batinia coast and from Sur].

RED SEA [Leatherwood and Reeves, 1983, 234].

#### 14. *Stenella longirostris* (Gray, 1828)

*Delphinus microps* Gray, 1846

*Delphinus alope* Gray, 1846

#### LONG-SNOUDED SPINNER DOLPHIN

##### Records:

SRI LANKA [In British Museum (Natural History) under *Stenella microps* (i) skull and skeleton from Trincomalee (E.P.) gifted by

Hugh Nevill, (ii) skull and skeleton of a female, twenty miles north of Colombo gifted by G. C. Beaumont, (iii) skull and scapulae of female from 50 miles north of Colombo and (iv) skull of a female from the west coast of Sri Lanka gifted by Dr. W. C. Osman-Hill; sightings — frequents northwest coast of Ceylon — Holdsworth 1872; southwest of Yala on 3rd February 1970 — Leatherwood and Clarke, 1983; Koddiyar Bay on 28th February 1983, 100 animals on 15th April 1983 just north of Sri Lanka, approximately 200 animals on 16th April 1983 off Trincomalee (E.P.) — Leatherwood *et al.*, 1984; east coast of Sri Lanka — Alling *et al.*, 1983; caught off Negombo and Colombo — Joseph *et al.*, 1983; Beruwela (S.P.) — Alling and E. R. Tranchell; Galle (S.P.) — Leatherwood, 1985; off Trincomalee (E.P.) — Alling, Prematunga *et al.*, 1983; East coast — Tulip Expedition; Collections — Skull from Arippu in the Museum, College of Surgeons, Colombo and 5 skulls from specimens off Trincomalee gifted by E. C. Fernando in the Field Museum of Natural History, Chicago.

INDIA [Photograph of skull (illustration) taken prior to 1827 from Malabar in U.S. National Museum files — Leatherwood, 1985].

MALDIVE ISLANDS [Sightings — Guadu, Miladummadulla Atoll, south Male Atoll — Leatherwood, 1984].

GULF OF OMAN [Calvarium from Sur Oman and skull between Sur and Ras Al Hadd collected by M. D. Gallagher and skull from Sur, Masirah Island collected by T. D. Rogers in the British Museum (Natural History)].

GULF OF ADEN [Skeleton in Museum National d'Histoire Naturelle, Laboratoire d'Anatomie Comparee, Paris collected from Djibouti by J. N. Rose — Leatherwood, 1985].

RED SEA [Skull in Field Museum of Natural History, Chicago, U.S.A. collected by D. Osborn on coast north of Mersa Alam, Egypt].



15. *Stenella coeruleoalba* (Meyen, 1833)

STRIPED DOLPHIN

Records:

SRI LANKA [*Sightings* — off the east coast — Alling *et al.*, 1983; caught off Negombo (W.P.), 2 males on 18th November 1982 and 11th January 1983 — Joseph *et al.*, 1983; Beruwela (S.P.) on 9th May 1983 — Alling and E. R. Tranchell from 5th January to 25th May 1985; 94 animals and 10 males and 13 females off Trincomalee from 15th March 1983 to April 1985 — Prematunga *et al.*, in press].

MALDIVE ISLANDS [*Sightings* — northeast on 19th April 1983 — Leatherwood *et al.*, 1984].

GULF OF OMAN [Calvarium collected from Sawagq on 26th November 1977 by M. D. Gallagher in the British Museum (Natural History — Leatherwood, 1985].

16. *Grampus griseus* (G. Cuvier, 1812)

RISSO'S DOLPHIN

Records:

SRI LANKA [*Sightings* — northeast coast about 150 animals on 16th April 1983 — Leatherwood *et al.*, 1984; off Sri Lanka — Alling *et al.*, 1982 and east coast, 6 sightings — Alling, 1983; caught off Negombo one male specimen on 8th October 1982 — Joseph *et al.*, 1982; 67 animals from January 1983 to March 1985 off Trincomalee — Alling and Prematunga *et al.*, 1985; Beruwala (S.P.) from 9th May 1983 to 25th May 1985, 108 animals — Alling and E. R. Tranchell].

MALDIVE ISLANDS [Off Male Atoll, 4 to 6 animals — Leatherwood, 1984].

GULF OF OMAN [Skull from Ra Sallin, Bati-mah, a rib, vertebra and a mandible collected from Qurmur Muscat by M. D. Gallagher and two skeletons from Muscat collected by A.S.G. Jayakar in the British Museum (Natural

History); skull from Ras Al Hadd in the Zoological Museum, Amsterdam — Leatherwood, 1985].

RED SEA [Calvarium collected by G. W. Graham from coast — Leatherwood, 1985].

17. *Peponocephala electra* (Gray, 1846)

*Delphinus fusiformis* Owen, 1866

*Lagenorhynchus electra* True, 1889

*Lagenorhynchus obscurum* Blanford, 1891

*Lagenorhynchus electra* Roberts, 1977

*Lagenorhynchus obscurus* Phillips, 1980

MELON-HEADED WHALE

Records:

SRI LANKA [Skull from Palk Strait in Calcutta Museum — Blanford, 1891].

INDIA [Madras, type locality of *Delphinus (Lagenorhynchus) fusiformis* Owen, 1866 and type skull collected by Sir Walter Elliot in the British Museum (Natural History) from Vizagapatam, Madras; Bierman and Slijper, 1947].

PAKISTAN [*Sightings* — seen regularly off Mekran coast but usually after the end of the monsoon and during the winter months when the Mekran coastal waters provide a particularly rich fishing ground — Dr. Ranjha and generally common in Pakistan waters — Roberts, 1977; *strandings* — 2 strandings, one at Cape Monze on 14th October 1981 and the other at Rehri Creek on 20th March 1982.

18. *Globicephala macrorhynchus* Gray, 1846

*G[lobicephala] indica* Blyth, 1852

*Globicephalus indicus* Blanford, 1891

*Globicephala* sp. Deraniyagala, 1945

SHORT-FINNED PILOT WHALE

Records:

SRI LANKA [From a fossil vertebra collected by Colonel S. D. Cleve of the Royal Engineers when digging at Promontery known as Flag-

staff Battery, Colombo at a depth of 15 feet and from 100 yards from shore — Deraniyagala, 1945].

INDIA [2 specimens out of a shoal of several dozens found stranded in Hooghly River, near Serampore, West Bengal in July 1852; dozens near Salt Lakes, Calcutta in 1950 — Jones, 1953; salt or brackish water of the Gangetic Delta — Blanford, 1891].

19. *Feresa attenuata* Gray, 1874

PYGMY KILLER WHALE

Records:

SRI LANKA [*Sightings* — Alling, 1983; caught off Trincomalee, 3 animals on 8th February and 3rd April 1983 — Alling; and Beruwala, 8 animals — E. R. Tranchell].

GULF OF OMAN [*Sighting* close to Oman coast — Harwood, 1980].

20. *Pseudorca crassidens* (Owen, 1846)

FALSE KILLER WHALE

Records:

SRI LANKA [*Sightings* — off northeast coast in April 1982 — Leatherwood and Clarke, 1983; off the east coast on 16th April 1983 — Alling *et al.* (1983); 25 to 30 animals on northeast coast — Leatherwood *et al.*, 1984; caught off Moratuwa (W.P.) in December 1980, complete skeleton in Colombo Museum and 167 specimens stranded at Kambanturai at Kayts (N.P.) on 3rd August 1929 — Pearson, 1930; 97 specimens stranded at Mutur (E.P.) on 10th November 1934, a single specimen at Godavaya (S.P.) on 30th September 1939 and another specimen at Chempianpattu (N.P.) on 28th January 1954 — Deraniyagala, 1960].

INDIA [South of India — Pearson, 1930; Male and female stranded at Trivandrum in February 1902 — Pillay, 1926; male and female at Pozhikara, Cape Comorin, Trivandrum —

Silas and Pillay, 1960; Puthiappa, north of Calicut on 28th July 1975 — Mohan *et al.* 1984; from Port Blair, Andamans, caught on 27 July 1976 — James, 1984; specimen from Gulf of Cambay, Maharashtra in August 1978 by V. M. Raval in Institute of Science, Navsari; Rameswaram, Gulf of Mannar on 18th October 1975 — Thiagarajan *et al.*, 1984; skeleton from Travancore in British Museum (Natural History) — Leatherwood, 1985].

PAKISTAN [A specimen stranded at Phitti Creek on Sind coast on 17th October 1981 — Ahmad, 1982].

GULF OF OMAN [Skull from Khasab, north Oman collected by Royal Geographic Society and part of a right ramus from Masirah Island collected by M. D. Gallagher in British Museum (Natural History) — Leatherwood, 1985].

ARABIAN GULF [One specimen at Dowha at 40 km, south of Kuwait in muddy area in 1964, skeleton in Kuwait Natural History Museum — Al-Robbae, 1974].

21. *Orcinus orca* (Linnaeus, 1758)

KILLER WHALE

Records:

SRI LANKA [*Sightings* — west coast, April 1868 — Blanford, 1891; off Chilaw (N.W.P.) — Holdsworth, 1872].

INDIA [*Sighting* of one animal north of Andamans on 12th April 1983 — Leatherwood *et al.*, 1984; *stranding* of specimen at Armada, Baroda State in 1943 — S. T. Moses, 1948; skull from Nicobar Island in Bombay Natural History Society — Pilleri and Gehr, 1973-74].

PAKISTAN [Strandings recorded — Mohd. Farooq Ahmad, 1982].

GULF OF ADEN [Large male off Rashafun on 29th April 1982 by Jeremiah and Sullivan — Leatherwood, 1985].

22. *Orcaella brevirostris* (Gray, 1866)

IRRAWADY DOLPHIN

Records:

INDIA [Type locality, Vizagapatam, Madras, Bay of Bengal, type skull collected by Sir Walter Elliot in British Museum (Natural History); Ganges river, 70 to 80 metres upstream, Bay of Bengal — Anderson, 1871; ascending rivers as far as the tide extends — Blanford, 1891; Bay of Bengal probably the western extreme of its range — Leatherwood and Reeves, 1983].

23. *Neophocaena phocaenoides* (G. Cuvier, 1829)

*Delphinapterus molagen* Owen, 1866

*Neomeris kurrachiensis* Murray, 1884

*Neomeris phocaenoides* Roberts, 1977

FINLESS PORPOISE

Records:

SRI LANKA [a specimen caught, 670 mm in length, by Smithsonian Carangid Survey Team on 20th March 1970 from the Wadge Bank, alcohol specimen in Museum of Comparative Zoology, Mass, U.S.A.].

INDIA [Caught — a juvenile specimen in a gill net in February 1973, 669 mm in length from Calicut — Balan, 1976; 7 males and 10 females off Calangute, Goa between 4th October 1973 to 4th April 1978 — Thomas, 1983; 17 animals off south Canara coast and one animal off Calicut — Dawson, 1957, 1959; skulls and skeletons — skulls collected in 1827, an incomplete skeleton and a mounted specimen collected by Dussumier from Malabar coast in the Museum National d'Histoire Naturelle, Laboratoire d'Anatomie Comparee — Gray, 1846; Madras, type locality of *Delphinapterus molagen* Owen, 1866; skull from Travancore collected by Ferguson in British Museum (Natural History) and skull and foetus from mouth of Bombay Harbour in British Museum (Natural History) — Pilleri

and Gihir, 1972; skeleton from Trivandrum in Trivandrum Museum — Lydekker, 1908; 3 skulls in Bombay Natural History Society from Malabar coast].

PAKISTAN [7 skulls from Gadani, Sonmiani Bay, 2 skulls from Milutu Camp, Sonmiani Bay, skull from Gizri village, skull from Rehri Creek, skull from Kudri Creek, skull from Edrahym Hydari, 2 skulls from Dahm, Sonmiani Bay and skull from Sonmiani Bay in Pilleri collection — Pilleri and Gihir, 1972; stranding — one specimen at Korangi Creek on Sind coast on 3rd November 1981 — Mohd. Farooq Ahmad, 1982; Karachi — Murray, 1884 as *Neomeris kurrachiensis*; sightings — common on Pakistan coasts and in the Indus mouth frequenting Kudi, Mull, Khai and Dubla Creeks — Pilleri, 1972; common along the Mekran coast from late September to April frequenting the Mangrove creeks and inlets, sighted around Sonmiani Hor in Les Belas and in the estuary of the Hingol River in the Mekran — Roberts, 1977; Sind and Baluchistan coasts — Ahmad and Ghalib, 1975].

ARABIAN GULF [One dead male, 37 km south of FAO in Iraq Territorial waters on 2nd May 1974 and one female caught by fishing trawler from FAO area on 15th April 1975 — Al-Robbah, 1975].

24 *Eubalaena australis* Desmoulins, 1822

SOUTHERN RIGHT WHALE

Records:

INDIA [One specimen stranded at Gajana, Baroda State in 1944 — S. T. Moses, 1948].

25. *Balaenoptera musculus* (Linnaeus, 1758)

*Balaenoptera indica* Blyth, 1859

*Sibbaldus musculus* Deraniyagala, 1948

BLUE WHALE

Records:

SRI LANKA [Coasts of Ceylon — Blanford, 1891; sightings — a sixty foot female on 23rd

January 1946 in Trincomalee Harbour by Capt. Mount Haes; east of Trincomalee on 16th October 1983, a small animal — Whitehead, 1983; 16 animals at Koddidiyar Bay, Trincomalee on 28th February 1983 and an adult with accompanying calf in May 1983 at Foul Point near Trincomalee — Leatherwood *et al.*, 1984; on 7th May 1985 off Dondra (S.P.) — Gunaratne, 1985; *strandings* — Ambalanga (S.P.) in September 1894, 65 feet in length — Haly, 1894 (skeleton in Colombo Museum); a male on 26th May 1932 in Tanglegam Bay and another specimen in Koddidiyar Bay, Trincomalee on 30th June 1932, length 66 feet approx. — Pearson, 1932; Nirodummai, 35 feet in length in 1932 — S. T. Moses, 1947; Polhena, near Matara (S.P.) on 6th February 1934 (Plate 1) — Malpas; Dodanduwa (S.P.) on 10th January 1939 — Deraniyagala, 1965; Bambalapitiya (W.P.) on 8th April 1949 — Deraniyagala, 1960; Kokkilai near Pulmoddai (E.P.) on 14th April 1965, Wellawatte (W.P.) on 3rd April 1965 and Galle Face, Colombo (W.P.) in March 1976, carcasses of a mother and calf — P.H.D.H. de Silva; on 9th February 1984, Chilaw (N.W.P.), Fernando, 1981].

INDIA [Jaw bone from off Sordip Bay, Bay of Bengal of *Balaenoptera indica* — Blyth, 1859; skeleton in Madras Museum from Mangalore collected in 1874 — S. T. Moses, 1947; Bay of Bengal and coast of Malabar — Blanford, 1891; *strandings* — near Bombay, Thana District on 11th April 1906, length 63 feet — Millard, 1907; a 61 feet blue whale stranded at Viziadurg near Ratnagiri in August 1912, a whale over 80 feet near Charai, Cochin in November 1927, between Suratkal and Moolki in 1939 and at Mulvel, Okhamandel in March 1939 — S. T. Mosses, 1947; Jambudwip, Bengal coast in January or February 1934 — S. Jones, 1953; near Magdalla, Port Surat, Gujarat, a whale 66 feet in length — J. C. Daniel, 1963; On 7th December 1960

and on 1st December 1980 at Ganeshgram village, Gujarat and a 11.26 m female at Tuticorin on 2nd April 1969 — James, 1983; Muloor village, South Kanara — Nagabhuganam and Dhulked, 1964 and Calicut — Venkataraman and Giriya Vallabhan, 1968].

PAKISTAN [*Sightings* — shallow waters of Mekran coast — Roberts, 1977; *strandings* — Clifton Beach, 1879 — Murray, 1884 and several strandings on the Sind coast — Blanford, 1891; parts of skeleton from Juddi near Pasni, Mekran coast in 1965 and a specimen of about 60 feet stranded about 5 miles west of Pasni, and a skeleton in the Zoological Survey of Pakistan, 70 feet in length — Siddiqi, 1967 and common on Baluchistan coast — Mohd. Farooq Ahmad, 1982].

ARABIAN GULF [Iraq — Nuri Mahdi and P. V. Georg, 1969; Kuwait, a dead whale entangled in a submarine telegraph cable, skeleton mounted in the Kuwait Natural History Museum and at Kadguma on the Kuwait coast in muddy area on 6th June 1963, skeleton in Shuaikh Secondary School — Al-Robbac, 1974].

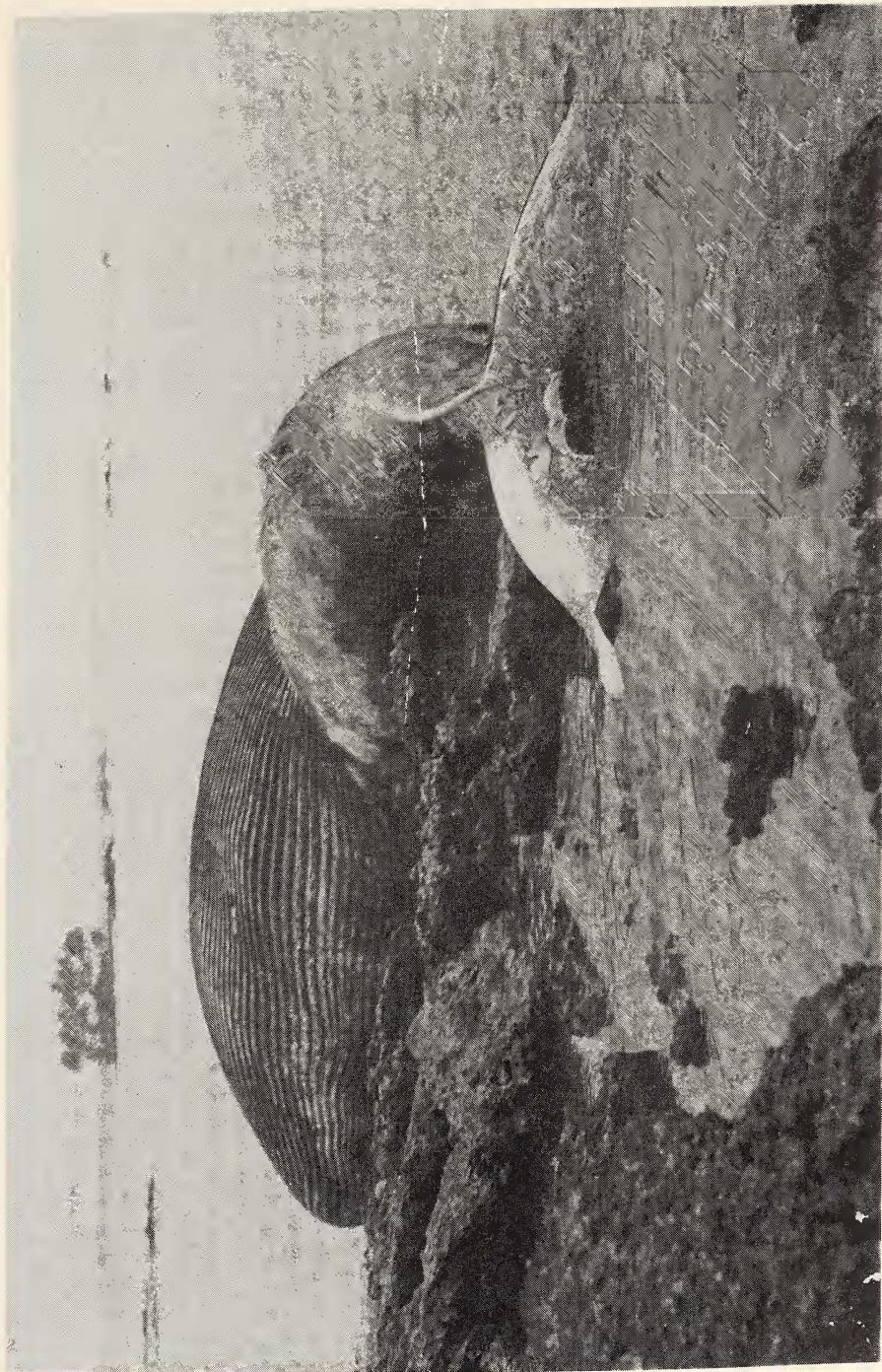
## 26. *Balaenoptera physalus* (Linnaeus, 1758)

### FIN WHALE

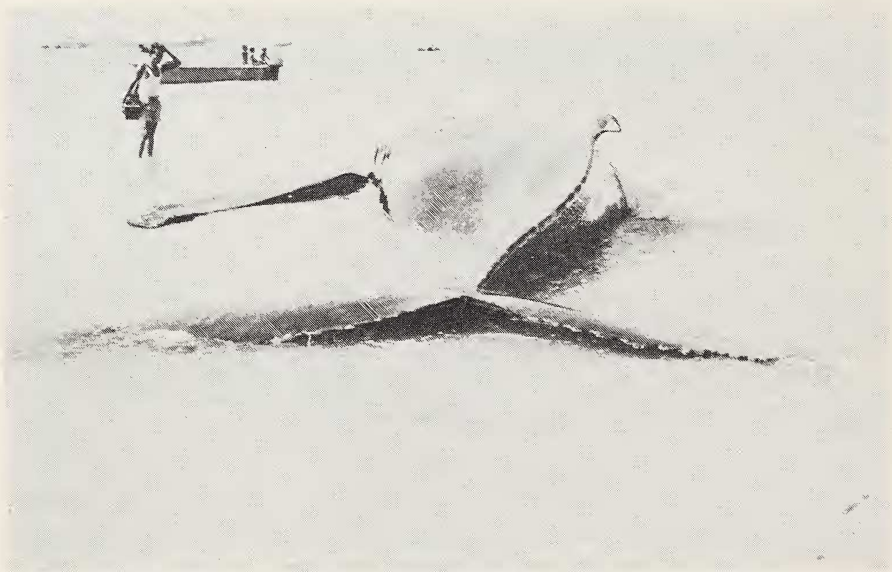
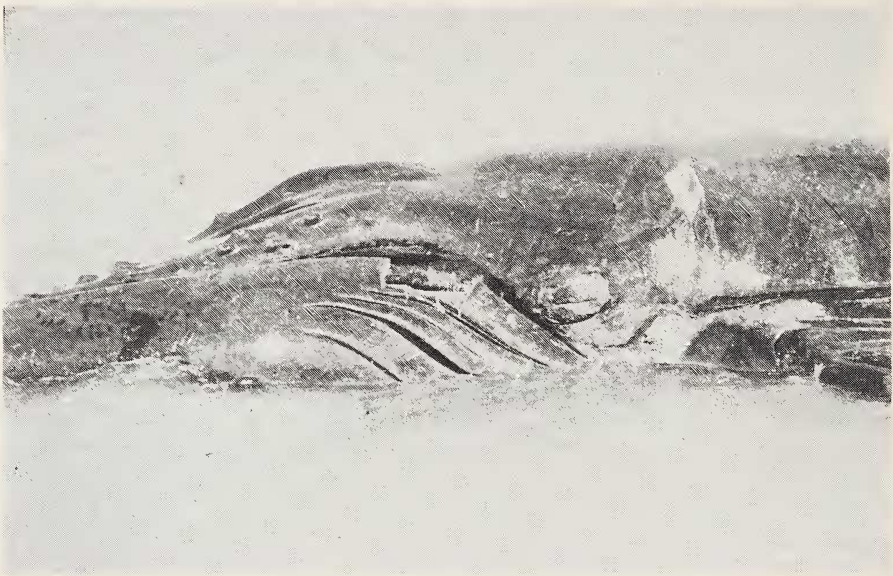
#### *Records:*

SRI LANKA [*Strandings* — Chilaw (N.W.P.) in August 1910 — H.S. Fernando, 1912; Bambalapitiya, Colombo (W.P.) in February 1934, Chilaw (N.W.P.) in August 1934, Bambalapitiya (W.P.), one on 1st June 1934 and another specimen at Ariyalai, Jaffna (N.P.) on 7 June 1949 — Deraniyagala, 1960; Uswetikeiyawa, Colombo (W.P.) on 11th August 1971, 45 feet in length — P.H.D.H. de Silva, 1983].

INDIA [5 vertebrae in the Medical College, Calcutta under the name, *Balaenoptera blythi* — Anderson, 1879; *strandings* — at Umargam, 100 miles from Bombay, 68 feet in length on



Carcass of *Balaenoptera musculus*, the Blue Whale beached at Polhena, near Matara (S.P.), Sri Lanka, on 6th February, 1934.



Two photographs of *Megaptera novaeangliae*, the humpback whale on Chilaw beach (N.W.P.), Sri Lanka, on 22nd January 1981.

14th May 1951 — V. K. Chari, 1951 and confirmed by J. C. Daniel, 1963; at Dhabool, 97 miles south of Bombay — Prater, 1913 as *B. indica*; off Arnala, west of Virar, 40 km north of Bombay, about 48 feet and with 68 throat furrows on 6th August 1965 and a specimen stranded among rocks at Nepean Seaface, Bombay, about 50 feet in length — Grubh and Pereira, 1965].

PAKISTAN [Sightings — Baluchistan coast — Ahmad and Ghalib, 1975; *strandings* observed — Roberts, 1977 and Mohd. Farooq Ahmad, 1982; young specimen ensnared by local fishermen in July 1969 in their nets near Astola Island, length about 35 feet, and towed back to Karachi but later released to the sea by Dr. M. S. Siddiqi — Roberts, 1977].

ARABIAN GULF [Two incomplete skeletons in the University Zoological Museum, King Saud University, Riyadh, Saudi Arabia, probably of mother and calf from Dhahran coast, around 1970 — P.H.D.H. de Silva].

27. *Balaenoptera acutorostrata* Lacépede, 1804

*Balaenoptera acutorostrata bonaerensis*

Deraniyagala, 1960

*Balaenoptera acutorostrata thalmaha*

Deraniyagala, 1963

MINKE WHALE

*Records:*

SRI LANKA [*Strandings* — Mannar (N.P.) on 19th May 1937, length 21 feet; Chempianpattu, Jaffna on 28th January 1954, male, 26 feet in length; 5 carcasses off Jaffna (N.P.) at Kayts, Analativu, Velani East and Delft west from 3rd to 12th November 1962 measuring 28 feet, 35 feet, 30 feet, 30 feet and 30 feet respectively, skeleton and scapula in Jaffna Museum — Deraniyagala, 1948, 1954 and 1963].

INDIA [Bay of Bengal — Ellerman and Morrison-Scott, 1966].

RED SEA. [Stranding of a specimen, 20 km south of Jizan, Saudi Arabia in May 1969 — Leatherwood, 1985].

28. *Balaenoptera borealis* Lesson, 1828

SEI WHALE

*Records:*

INDIA [Naduvattum, Kerala, an individual 45 feet in length with 45 throat furrows — P. K. Jacob and Devdas Menon, 1947 and confirmed by J. C. Daniel, 1963; at Pullamadan, near Mandapam Camp, a specimen about 50 feet — Venkataraman, Dorairaj, Devaraj and Ganapathi, 1973].

29. *Balaenoptera edeni* Anderson, 1878

BRYDE'S WHALE

*Records:*

SRI LANKA [*Sightings* — Known from sightings recorded recently by Leatherwood and Clarke, 1983, Leatherwood *et al.*, 1984 and Gunaratne and Obeysekera, 1985 from north of Trincomalee, 7 animals, near Koddidiyar Bay, 2 animals, off south shore Talaimannar (N.P.) and east of Adam's Bridge (N.P.), Trincomalee Harbour and off Dondra (S.P.)].

INDIA [Bay of Bengal — Blanford, 1891].

PAKISTAN [Strandings observed — Mohd. Farooq Ahmad, 1982].

ARABIAN GULF [A specimen stranded in 1967 near Iraq port on island in front of Um Qasr, male, 41 feet and also a possible stranding in Kuwait — Nuri Mahdi, 1974 and a reference by P. Neve, 1973, particulars not available to author].

RED SEA [Near Tor, on the Sinai Peninsula in 1893, skeleton in the British Museum (Natural History) — Nuri Mahdi, 1967 and common — J. G. and P.R.G. Gasperetti, 1981].

30. *Megaptera novaeangliae* (Borowski, 1781)

HUMPBACK WHALE

Records:

SRI LANKA [*Sightings* — off Colombo (W.P.) in winter 1846 — Wray and Martin, 1980; Colombo Harbour, mother and calf on 22nd February 1949 — Deraniyagala, 1960; Gulf of Mannar (N.P.) — Wray and Martin, 1980 and Alling *et al.*, 1982; *stranding* of Chilaw (N.W.P.) of a specimen after being entangled in fishermen's nets on 22nd January 1981, length thirty-nine and half feet (Plate 2) — P.H.D.H. de Silva, 1983].

INDIA [Stranding at Anjengo, Travancore on 23rd January 1943, entangled in seine net — Mathew, 1947].

PAKISTAN [A specimen entangled in the telegraph-cable and drowned off the Baluchistan coast in July 1873 and a sight record off the mouth of Indus, probably of this species — Blanford, 1891; strandings observed — Mohd. Farooq Ahmad, 1982].

ARABIAN GULF [Gervais, 1883; skeleton and calvarium from Bassore Bay in Museum National d'Histoire Naturelle, Paris; a vertebra and rib probably of a specimen killed by a Turkish gun boat in the Shatt — Al Arab in Iraq Museum probably of this species — R. Hatt, 1959 and referred to by Al-Robbae, 1974].

#### DISCUSSION

In this paper a total of thirty Cetacean species are described. Of these, records from off Sri Lanka total 23 species, 24 species from off India and 17 species from off Pakistan. The remaining records include 10 species from the Gulf of Oman, 9 species from the Arabian Gulf, 6 species from the Gulf of Aden and 7 species from the Red Sea. These records are based on sight records, strandings of individuals and mass stranding and skull and skeletal material in Museums and institutions. There

are 3 instances of mass strandings namely, (1) 167 individuals of *Pseudorca crassidens* stranded near Kambanturai at Kayts, (2) 97 individuals stranded at Mutur, and (3) dozens of the Indian Pilot whale, *Globicephala macrorhynchus* stranded in the Salt Lakes, Calcutta. Two instances of multiple strandings are recorded which involve 5 specimens of *Balaenoptera acutorostrata* off the north of Sri Lanka and 2 individuals of *Pseudorca crassidens* off Pozhikara, Cape Comorin, Tamil Nadu.

In figures 1 and 2 strandings of large whales where dates are available are shown. For simplification the twelve months have been separated in these figures to two half-yearly periods referred to as Southern Winter and Southern Summer. Figure 1 gives the monthly strandings from April to March of the following year of all strandings where dates are available and Figure 2 shows the monthly strandings in respect of 4 species, *B. musculus*, *B. physalus*, *Megaptera novaeangliae* and *Physeter macrocephalus*. There is no indication that there is a seasonal peak in the strandings, though a peak is indicated for January.

It is generally considered that *Balaenoptera musculus*, *B. physalus* and *M. novaeangliae* show seasonal migratory pattern (MacIntosh 1966, Dawbin 1966). Baker (1972) states that *B. borealis* and *B. edeni* spend a shorter summer in the Antarctic waters and the rest of the year in the tropics. The records of strandings of both *Megaptera novaeangliae* and *Physeter macrocephalus* are insufficient for any statistical analysis but the available records for *B. musculus* and *B. physalus* appear to indicate the presence of such a seasonal pattern for the greater number of their strandings have occurred when they were in the tropics during southern winter. There are also the instances of the cow and calf of *B. musculus* being cast ashore at Galle Face, Colombo and of a cow



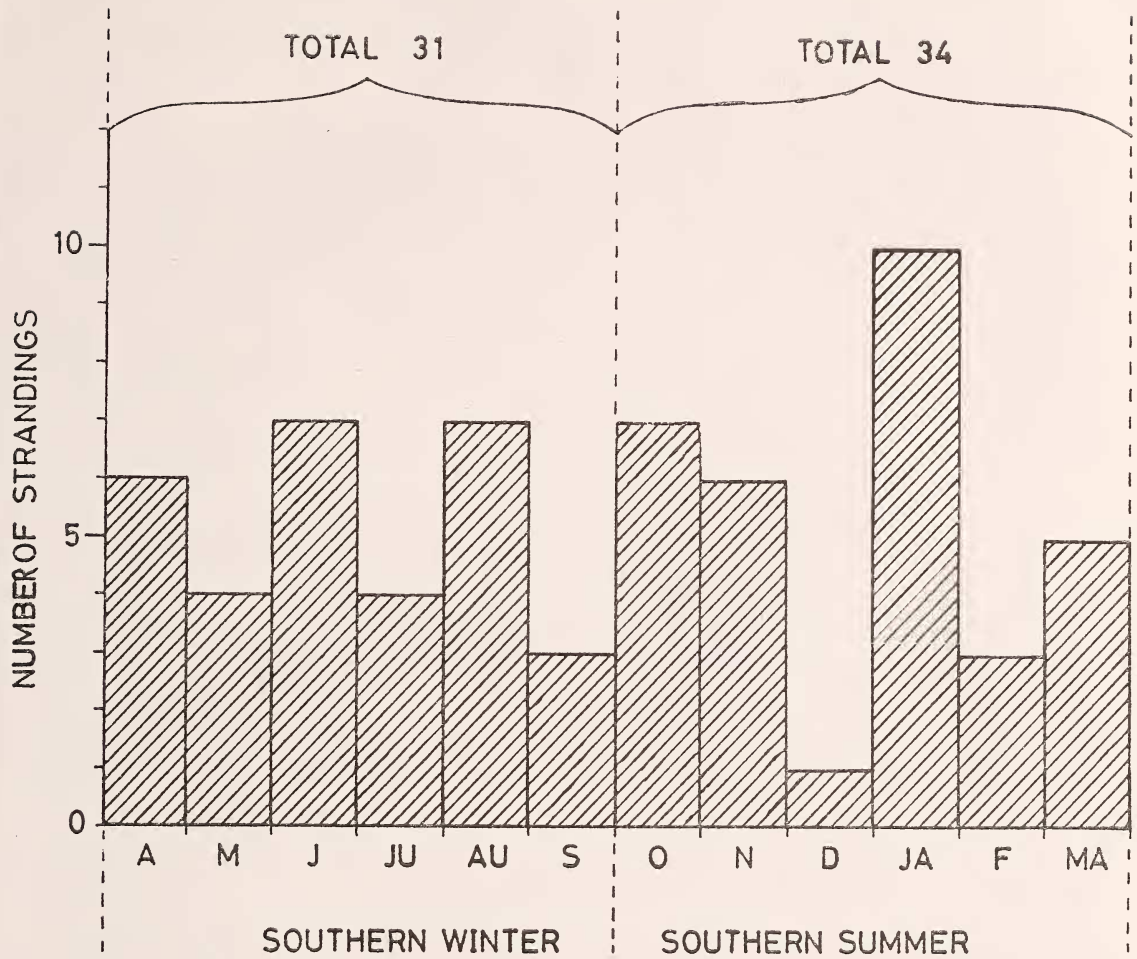


Fig. 1. Histogram showing the monthly strandings (April to following March).

of the same species returning to Trincomalee Harbour after it had been towed out to sea to give birth to a calf, all these instances coinciding with the period they normally spend in the warm tropical and subtropical waters. The data shown in figure 2 also indicates a lower peak in stranding at least for *B. musculus* and *B. physalus* from January to March, i.e. during the southern summer. This appears to suggest that a certain percentage of individuals

arriving in the warmer subtropical and tropical waters continue to linger after the majority of their members have returned to the polar and subpolar seas for feeding.

A research team consisting of Dr. Hal Whitehead, Dr. Roger Page and Dr. Stephen Slater, members of the Tulip Expedition have been studying the larger whales, especially the Blue and Sperm Whales off the east coast of Sri Lanka under the auspices of the world

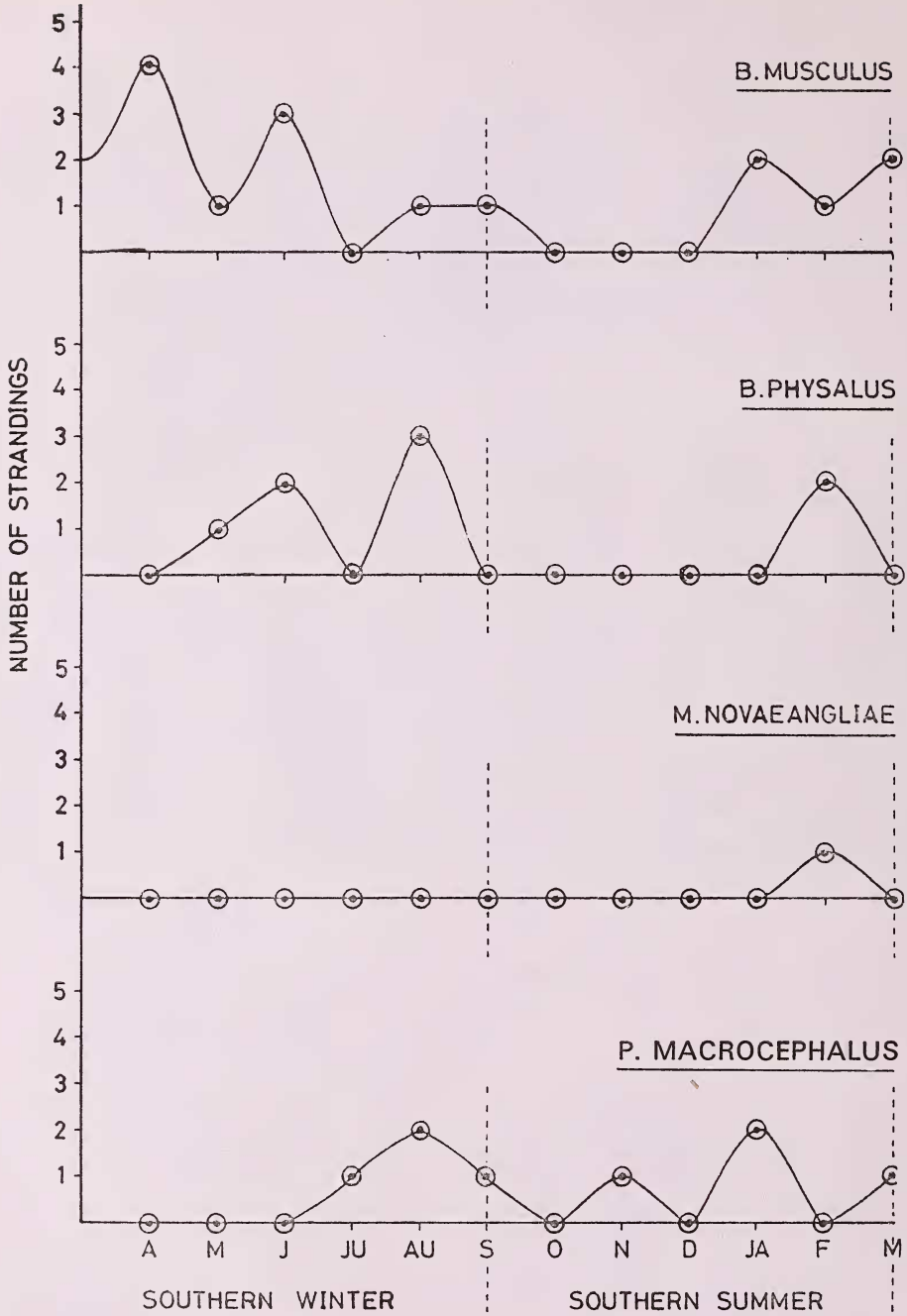


Fig. 2. Shows the monthly strandings (April to following March) in the Region in respect of *Balaenopteras musculus*, *B. physalus*, *Megaptera novaeangliae* and *Physeter macrocephalus*.

Wild Life Fund during the past few years. They have observed these whales off the east coast, particularly off Trincomalee during most parts of the year. Recently they have observed a Sperm Whale, about 20 metres in length, giving birth to a calf ("Ceylon Daily News" of 6th December 1983). These scientists now consider the east coast of Sri Lanka to be a calving ground for the larger whales during March to October during the year. Could it be that individuals which linger without returning to the polar and subpolar regions during the southern summer account for the individuals seen by the Tulip Expedition or is there a small breeding population of both Blue and Sperm Whales as suggested by the Tulip Expedition. It will be sometime before we will be able to know the actual position.

According to Norman and Fraser (1948) the Humpback Whale is "coast-loving in its habits, frequenting bays and inlets and it may be for this reason that so few get into difficulties in shoal water." The cow and calf seen by Deraniyagala in the Colombo Harbour eventually returned to the sea without mishap, and the death of the specimen off Chilaw was a result of entanglement in fishermen's nets and being dragged ashore by fishing vessels.

The data on Sri Lankan strandings discussed in this paper, meagre as these are, show that while equal number of strandings have occurred of the Blue Whale on both east and west coasts all the strandings of the Fin Whale and Sperm Whale have occurred on west and southern coasts and none on the east coast. This appears to suggest that while the east coast appears to be favourable for their life and movements the southern and west coasts specially with their fringing reefs provide much hazards to these two species. The strandings of Blue Whale, however, cannot be explained by unfavourable shore line configuration alone.

Several causes have been suggested to ex-

plain stranding in the Cetaceans but no single explanation provides a satisfactory answer. Several of the causes suggested are, (1) failure of its echolocation system (Dudock van Heel 1966), (2) tempted to shallow water by food, coastal migration or of offshore species staying too close to shore (Geraci), (3) the presence of an element of suicide (Geraci), (4) some form of reproductive urge to move to coastal water (Deraniyagala 1948), (5) harassed or chased by a predator, (6) frightened by unfamiliar underwater sounds, (7) following an ailing leader, (8) disoriented by disease with loss of equilibrium (many cases of infestation by trematodes in brain, around spinal cord, lungs, head sinuses, ear etc.) — Geraci, Ridgeway and Dailey 1972, Dailey and Walker 1978, Dailey and Stroud 1978, (9) disturbance in the social order (Geraci), (10) travelling an ancient migratory route and (11) reverting to some primitive social behaviour that led their shore-living ancestors to retreat to land when faced with a menacing sea (Keller Breland and F. G. Wood 1961, Ridgeway and Dailey 1972).

It is therefore necessary to record not only the species involved and data on strandings but also look for evidence which could reveal probable cause of strandings. It will be useful to record the shore line configuration in each instance and also to make a careful search for internal parasites, especially trematodes in the central nervous system, head sinuses and in the ears.

The present records of species in the region also reveal that some species such as *Mesoplodon ginkgodens* and *Eubalaena australis* are known from single records while several species have not been recorded after their early records more than fifty to seventy five years ago.

While accepting that the existence of several Cetacean species could only be known through strandings yet it should be the concern of

National Scientific Institutions in each country of the region to undertake a Cetacean faunal Survey off each country's coasts (and seas) and maintain up-to-date records of strandings with dates, of information on internal parasites, gut contents and the coastline configuration so that a clearer picture of both composition of species as well as of probable cause/s of strandings will become available.

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I wish also to thank the retired Taxidermist of the Colombo Museum, Mr. K.L.E. Perera who provided facilities for me to examine the Cetacean skulls in the Museum and the records during the time he was in service.

#### REFERENCES

- AHMAD, FAROOQ MOHAMMED (1982): Personal Communication.
- & GHALIB, S. A. (1975): A Checklist of Mammals of Pakistan. *Rec. zool. Sur. Pak.*, VII (1&2), pp. 32-33.
- AL-ROBBAE, K. (1974): *Tursiops aduncus*, Bottlenosed dolphin: A new record for the Arab Gulf; with notes on Cetacea of the region. *Bull. Basrah. nat. Hist. Mus.*, pp. 7-16.
- (1975): *Neophocaena phocaenoides*, Asiatic Black Finless Porpoise: A new record for the Arabian Gulf. *Bull. Basrah. nat. Hist. Mus.* 2: 47-49.
- BALAN, V. (1976): A note on a juvenile Indian Porpoise *Neomeris phocaenoides* (Cuvier) caught off Calicut. *Indian J. Fish.* 23(1-2): 263-65.
- BAKER, ALAN N. (1972): New Zealand Whales and Dolphins. *Tuatara*, 20, Part 1, pp. 1-49, Wellington, New Zealand.
- BLANFORD, W. T. (1891): The Fauna of British India including Ceylon and Burma. Taylor and Francis, London, pp. 564-591.
- CHACKO, P. I. & MATHEW, M. J. (1954): Rorqual Whale near Badagara, Malabar coast. *J. Bombay nat. Hist. Society* 52: 585-6.
- CHARI, V. K. (1951): The great Indian Rorqual or Fin Whale, *Balaenoptera indica* Blyth off Umargam, Bombay State. *J. Bombay nat. Hist. Society* 50: 167.
- DAILEY, MURRAY D. & WALKER, W. A. (1978): Parasitism As A Factor(?) In Single Strandings of Southern Californian Cetaceans. *J. Parasitol.*, 64(4): 593-96.
- & STROUD, RICHARD (1978): Parasites And Associated Pathology Observed In Cetaceans Stranded Along The Oregon Coast. *Journal of Wild Life Diseases*, 14: 503-11.
- DANIEL, J. C. (1963): Stranding of a Blue Whale *Balaenoptera musculus* (Linn.) near Surat, Gujarat with notes on earlier literature. *J. Bombay nat. Hist. Society*, 60(1): 252-4.
- DAWBIN, R. (1966): The Seasonal Migratory Cycle of Humpback Whales. In: Whales, Dolphins and Porpoises. Edited by Kenneth Norris, pp. 146-170. University of California Press.
- DE SILVA, P.H.D.H. (1965): Zoological Notes 2. Carcase of *Balaenoptera* sp. cast ashore at Kokkilai. *Spol. Zeylan*, 30(2): 263-4, Plate XI.
- (1983): Taxonomy of the Cetacea of the Indian Ocean. *NARA/SMM* 10.

CETACEANS (WHALES, DOLPHINS & PORPOISES) RECORDS

- DERANIYAGALA, P. E. P. (1945): Some Odontoceti from Ceylon. *Spol. Zeylan.*, 24(2): 113-120, 3 plates and 4 text-figures.
- (1948): Some Mystacetiids from Ceylon. *Spol. Zeylan.*, 25(2): 61-3, 1 plate and 1 text-figure.
- (1956): Zoological Collecting at the Maldives in 1932. *Spol. Zeylan.*, 28: 7-16.
- (1960a): Some Southern Temperate Zone Fishes, a Bird and Whales that enter the Ceylon area (Part I). *Spol. Zeylan.*, 29 (1): 87-9, 5 plates and 1 text-figure.
- (1960b): Antarctic Hydrographic Fluctuation as suggested by Animals that reach Ceylon. *Proc. Roy. Soc.*, Vol. 12, B.
- (1963): A New Beaked Whale from Ceylon. *Ceylon Today*, 12, (No. 3): 13-14.
- DUDOCK VAN HEEL, W. H. (1966): Navigation in Cetacea. In: Whales, Dolphins and Porpoises. Edited by Kenneth Norris, pp. 596-602. University of California Press.
- ELLERMAN, J. R. & MORRISON-SCOTT, T. C. S. (1966): Checklist of Palaearctic and Indian Mammals 1758-1946, pp. 712-742. 2nd edition. Trustees of the British Museum, London.
- GASPERETTI, J. G. & P.R.G. (1981): Wild Life of Saudi Arabia and its neighbours. Stacey International, London.
- GERACI, JOSEPH R.: The Enigma of Marine Mammal Strandings.
- GRUBH, B. ROBERT & PEREIRA, M. J. (1965): Strandings of Finner Whale, *Balaenoptera physalus* (Linn.) near Virar (Thana District) and at Bombay, Maharashtra State. *J. Bombay nat. Hist. Society*, 62: 550-51.
- HALL, RAYMOND E. & KELSON, K. R. (1959): The Mammals of North America. pp. 806-40. The Ronald Press Company, New York.
- HALY, A. (1894): The Administration Report of the Director of the Colombo Museum for 1894. Government Press, Colombo.
- HOLDSWORTH, E. W. H. (1872): Note on a Cetacean observed on the West Coast of Ceylon. *Proc. zool. Soc. Lond.*, pp. 583-86.
- LANTZ, A. W. & GUNASEKERA, C. (1956): Commercial Utilization of Dolphins, Porpoises in Ceylon. *Bull. Fish. Res. Sta. Ceylon*, 3: 1-14.
- LEATHERWOOD, STEPHEN (1985): Whales, Dolphins and Porpoises of the Indian Ocean Cetacean Sanctuary; A Summary of Available Information.
- & REEVES, RANDALL R. (1983): The Sierra Club Handbook of Whales and Dolphins. Sierra Club Books, San Francisco.
- LYDEKKER, R. (1903): On Two Cetaceans from Travancore by H. S. Ferguson with a note on the same. *J. Bombay nat. Hist. Society*, 15: 38-41.
- MACINTOSH, N. A. (1966): The Distribution of Southern Blue and Fin Whales. In: Whales, Dolphins and Porpoises, pp. 125-144. University of California Press.
- MAHDI, NURI (1967): First Record of Bryde's Whale, *Balaenoptera edeni* Anderson from Gulf, with notes on earlier literature. *Bull. Iraq nat. Mus.*, 3 (7): 1-6, 1 text-figure.
- & GEORG, P. V. (1969): A Systematic list of the Vertebrates of Iraq. Bulletin No. 26, pp. 72-73. University of Baghdad.
- MOSES, S. T. (1947): Stranding of Whales on the coasts of India. *J. Bombay nat. Hist. Society*, 47(2): 377-78.
- (1948): Notes on two whales stranded in Baroda State, *Orca* at Armada in 1943 and *Balaena* at Gajana in 1944. *Proc. Indian Sci. Congr.*, 84th, 3, p. 188.
- NEVE, P. (1973): Bryde's whale beached. *Journal of Saudi Arabian Natural History Society*, 7: 14.
- NORMAN, J. R. & FRASER, F. C. Giant fishes, Whales and Dolphins. pp. i-xxii, 1-376, 2nd edition, Putnam, London.
- PEARSON, J. (1921): A note on *Kogia breviceps*. *Spol. Zeylan.*, 11: 303-05.
- (1930): A Note on the False Killer Whale, *Pseudorca crassidens* (Owen), *Spol. Zeylan.*, 16: 199-203.
- PILLERI, G. (1972): Zoological-cetologische Expedition nach Westpakistan und Reise nach Indien Jahre 1971. *Verlag Hirnanatomisches Institut Waldau-Bern*, pp. 16-18.
- PREMATUNGA, W. P., ALLING, A. & LEATHERWOOD, J. S. (in press): Species composition of small cetacean bycatches in gillnets off Trincomalee, Sri Lanka, January 1984 through April 1985. *Rept. Int. Whal. Comm.*
- ROBERTS, T. J. (1977): The Mammals of Pakistan. *Ernest Benn. Ltd.*, London. pp. 306-335.